

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A semiconductor optical amplifier comprising:
a first mirror disposed on a substrate;

an active region consisting of an optical cavity having gain medium, said optical cavity being disposed adjacent said first mirror;

a second mirror disposed on said active region on a surface opposite said first mirror;

input and output portions formed in said mirrors, said input and output portions having formed layers of reduced reflectivity relative to a corresponding first or second mirror; and

a longitudinal waveguide integral to said optical cavity connecting said input and output ports, whereby said longitudinal waveguide is configured with a downward step in reflectivity at input and output ports of the optical amplifier.

Claims 2-5 are withdrawn

6. (Original) The semiconductor optical amplifier of claim 1, whereas said second mirror consists of a distributed Bragg reflector from the group of a series of high and low index dielectric layers disposed on said first mirror by non-epitaxial growth.

Claims 7-9 are withdrawn.

10. (Original) The semiconductor optical amplifier of claim 1 whereas said first mirror and said optical cavity with gain material are composed of lattice-matched semiconductor material, said second mirror is composed of different lattice matched metamorphic semiconductor material, and said longitudinal waveguide is formed by etch and oxidation of said metamorphic material.

Claims 11-16 are withdrawn.